DOE/SPR/EA-1505

Environmental Assessment for the Proposed Increase in the Facility Capacity and Petroleum Inventory at the Strategic Petroleum Reserve's Bryan Mound Storage Facility, *********, ********** *******, Texas

U.S. Department of Energy

Strategic Petroleum Reserve

900 Commerce Road East

New Orleans, Louisiana 70123

November 2004

FINDING OF NO SIGNIFICANT IMPACT
PROPOSED INCREASE IN THE FACILITY CAPACITY AND PETROLEUM INVENTORY AT THE STRATEGIC PETROLEUM RESERVE'S BRYAN MOUND STORAGE FACILITY

AGENCY: Department of Energy

ACTION: Finding of No Significant Impact

SUMMARY: The U.S. Department of Energy (DOE) Strategic Petroleum Reserve (SPR) prepared an Environmental Assessment (EA) (Attachment A) in response to a proposal to increase storage capacity at the Bryan Mound (BM) storage facility (facility) located in *******, Texas by including existing cavern ullage of 3.5 million cubic meters (m^3) [22 million barrels (MMB)]. The EA has been prepared in accordance with the Code of Federal Regulations (CFR), 40 CFR 1500-1508 and 10 CFR 1021. It identified that the proposed action to increase storage capacity at the BM facility to ** million m^3 (*** MMB) by including existing cavern ullage of 3.5 million m^3 (22 MMB) has potential direct, indirect or secondary, and cumulative impacts associated with its implementation.

Based on the results of the EA and implementation of mitigation activities, DOE has determined that the proposed action may result in short-term, direct environmental impacts to air quality [e.g., volatile organic compound (VOC) emissions], non-hazardous waste generation, and noise generation, and potential long-term or permanent direct impacts to facility permits. Additionally, short-term, secondary impacts to air quality and laboratory waste generation were also identified as were cumulative impacts (as associated with the return of cavern 112 to service at its full capacity). However, as the EA indicates, there would not be a net increase in long-term, permanent/direct, indirect/secondary or cumulative impacts to the environment as a result of the implementation of the proposed action as most impacts to the environment are short-term; other potential impacts are predicated only on the occurrence of a facility accident, should one occur.

In summary, while a number of impacts were identified, the proposed action is not a major Federal action significantly affecting the quality of the human environment within the meaning of the National Environmental Policy Act (NEPA). An Environmental Impact Statement (EIS) is not necessary and DOE is issuing this Finding of No Significant Impact (FONSI). DOE will also initiate and report on mitigation activities in accordance with the Mitigation Action Plan (MAP) contained in Attachment B to lessen the primary environmental impact associated with the proposed action, potential air impacts.

PUBLIC AVAILABILITY: The EA, FONSI, and MAP may be reviewed at www.spr.doe.gov/Environmental Safety and Health. Copies of the documents may be obtained from:

U.S. Department of Energy
Strategic Petroleum Reserve Project Office
Reading Room/Library DOE
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DESCRIPTION OF THE PROPOSED ACTION: The DOE proposes that the authorized capacity of the BM facility and, upon Administration authorization, the petroleum inventory be increased by 3.5 million m^3 (22 MMB). The proposed action may be subdivided into two distinct actions, the action to increase the facility capacity and the action to increase the facility's petroleum inventory, which is conditioned upon future authorization by the Administration. A portion of the proposed increase in facility capacity would be obtained via modification of the existing internal cavern infrastructure. Specifically, of the proposed increase in cavern capacity, up to 1.4 million m^3 (8.8 MMB) would result from adjustment of the suspended casing of 10 caverns, thereby increasing the working cavern volumes without changing the cavern dimensions. The balance of the proposed increase to facility capacity, 2.1 million m^3 (13.2 MMB), would result from administrative activities including the return of cavern 112 to service at its full capacity [approximately 1.9 million m^3 (12 MMB)] and volume upgrades of at least 0.19 million m^3 (1.2 MMB) based on new information obtained during sonar investigation of caverns.

ALTERNATIVES: Under the no action alternative, the BM facility would continue to operate as it is currently configured. No actions to increase facility capacity or increase oil inventory would be performed.

ENVIRONMENTAL IMPACTS: Short-term, direct environmental impacts to air quality (e.g., VOC emissions), non-hazardous waste generation, and noise generation have been identified as associated with the implementation phase of the proposed action. Potential long-term or permanent direct impacts to facility permits have also been identified. Short-term, secondary impacts to air quality and laboratory waste generation were also identified as associated with the implementation phase of the proposed action as were cumulative impacts, which are associated with the return to cavern 112 to service at its full capacity. However, as the EA indicates, there would not be a net increase in long-term, permanent/direct, indirect/secondary or cumulative impacts to the environment as a result of the implementation of the proposed action as most impacts to the environment are short-term and/or predicated on the potential occurrence of a facility accident. Accident analyses conducted indicate that potential risks associated with implementation of the proposed action are not imminently dangerous to human health or the environment.

MITIGATION: Mitigation activities for the proposed action are twofold. In the field, these activities will likely be comprised of a closed containment system that routes oil displaced during cavern workovers to the BM site crude oil tanks, mitigating VOC emissions by preventing exposure of VOC emissions to the environment during workover activities. However, should such a system not be feasible, the option of a vapor recovery system likely coupled with a flare and connected to the fractionation (frac) tanks has been evaluated for use during workovers and may be implemented. Administratively, scheduling of specific activities will also be employed to reduce impact to air quality from VOC emissions.

The closed containment system that was ultimately chosen as the preferred method to mitigate VOC emissions is comprised of utilization of a centrifugal pump to transfer the oil displaced during depressurization to the BM site crude oil tanks. This temporary pumping system will pump oil into the normal site oil fluid transfer headers, which will be used to route oil into the BM site oil tanks. Based on total displacement of approximately 75,000 barrels of oil during implementation of the proposed action, additional VOC emissions from the BM site oil tanks are estimated to be minimal, approximately 0.36 metric tons (mtons) (0.4 tons), due to the cooling of the oil as it enters the tank. If tank lineup is not available, the same closed system with centrifugal pumps in series and a positive displacement pump will still be utilized. However, this temporary pumping system will pump oil into the same site oil transfer headers, which will then route oil directly to another cavern. No emissions are anticipated to result from this option.

The flaring system that is indicated as the currently preferred alternate method to mitigate VOC emissions is comprised of a trailer-mounted flare that can handle five to eight million standard cubic feet per day with 98% VOC destruction. The estimated VOC emissions per workover by cavern when mitigation activities comprised of a vapor recovery system coupled with use of a flare are initiated are approximately 0.07 metric tons (0.08 tons).

As stated previously, scheduling will also be employed to mitigate the impacts to air quality as a result of VOC emissions. The permitted emissions for the BM facility are based on the calendar year. Thus, activities associated with the proposed action may be scheduled to occur over more than one calendar year to diminish annual impacts while conforming to the proposed project schedule. The logistics and scheduling of the distinct activities of the proposed action, i.e. workovers and fill, will be coordinated with environmental personnel in New Orleans and at the site to ensure that there is the requisite awareness of air quality and permit limitations relative to the VOC emissions.

DETERMINATION: Based on the results of the EA and implementation of the mitigation activities as described in this FONSI and the MAP, DOE has determined that the proposed increase in the facility capacity and petroleum inventory at the BM facility does not constitute a major Federal action that would significantly affect the quality of the human environment within the context of NEPA. Preparation of an EIS is not required.

Issued at New Orleans, Louisiana, this 24th day of November, 2004.

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Strategic Petroleum Reserve